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EXAMINER	
LOGSDON, JOSEPH B	

ART UNIT	PAPER NUMBER
2662	11

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/727,393	CHEN ET AL.	
	Examiner	Art Unit	
	Joe Logsdon	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections—35 U.S.C. 112, First Paragraph:

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 4, 5, 12, 13, and 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

According to claims 4 and 12, monitoring the number of data cells produced includes storing at least one data element concerning the data packet currently being processed if it is determined that another port contains a data packet available for processing, wherein this data element allows for subsequent processing of the remainder of the data packet currently being processed. This feature is not described in the specification in adequate detail. The specification therefore fails to enable one skilled in the art to make and use the invention as claimed without undue experimentation. Claims 5 and 13 depend on claims 4 and 12 and are therefore similarly rejected.

According to claim 25, the port-switching event is an unbalanced port-loading condition. The specification nowhere describes this feature. The specification therefore fails to enable one skilled in the art to make and use the invention as claimed without undue experimentation.

Claim Rejections—35 U.S.C. 103(a):

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-3, 6-11, 14-24, and 26-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. in view of Kothary and Davis et al.

With regard to claims 1, 9, 24, 26, 29, and 32, Patel et al. teaches a method, and switch for performing the method, wherein the method comprises polling, in a systematic fashion, a plurality of data ports connected to a network (abstract; column 3, lines 11-33). Patel et al. fails to teach that the polling is done for the purpose of determining whether a data packet is available at each port for processing; and the fragmenting of the available data packet into at least one data cell having a defined size; wherein this fragmentation continues until a user-defined number of

cells are generated (which is a port switching event). Kothary teaches polling the input ports to determine whether they each have a packet or cell to send (column 8, lines 14-20). Kothary teaches fragmenting Ethernet packets into ATM cells (abstract). Davis et al. teaches the routing of no more than B packets during any switch cycle (abstract); the number of packets from any given input port is thus limited to B. It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that the polling is done for the purpose of determining whether a data packet is available at each port for processing, as in Kothary, and the fragmenting of the available data packet into at least one data cell having a defined size, as in Kothary, wherein this fragmentation continues until a user-defined number of cells are generated, as suggested by Davis et al., because such an arrangement would enable the switch to forward data packets as cells when they are available to the switch, would prevent the switch from spending disproportionately more time serving large packets, and would limit the required bandwidth of the network to which the switch is attached.

With regard to claims 2 and 10, Patel et al. fails to teach the monitoring of the number of data cells produced to determine if the user defined number of cells have been generated. Davis et al. teaches the routing of no more than B packets during any switch cycle (abstract); the number of packets from any given input port is thus limited to B. It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that it teaches the monitoring of the number of data cells produced to determine if the user defined number of cells have been generated, as suggested by Davis et al., because such an arrangement would enable the system to determine whether to stop generating cells corresponding to one packet in order to

allow another packet to be processed without waiting an excessively long time to be processed, and would limit the bandwidth requirement of the attached network.

With regard to claims 3 and 11, Patel et al. fails to teach that the monitoring of the number of data cells produced includes initiating the polling process, if it is determined that the user defined number of cells have been generated, to determine if any other port contains a data packet available for processing. Kathory polls each input port to determine if it has a cell to send column 8, lines 14-18). Davis et al. teaches the routing of no more than B packets during any switch cycle (abstract); the number of packets from any given input port is thus limited to B. It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that it teaches that the monitoring of the number of data cells produced includes initiating the polling process, as in Kathory, if it is determined that the user defined number of cells have been generated, as suggested by Davis et al., to determine if any other port contains a data packet available for processing because such an arrangement would enable the system to determine whether to stop generating cells corresponding to one packet in order to allow another packet to be processed without waiting an excessively long time.

With regard to claims 6 and 15, Patel et al. fails to teach determining if the data packet has been fully fragmented into at least one data cell. The invention of Kathory inherently determines that each Ethernet packet has been fully segmented into ATM cells. It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that it teaches determining if the data packet has been fully fragmented into at least one data cell, as in Kathory, because such an arrangement would enable the switch to begin processing a packet at another port as soon as a previous packet has been broken into at least one cell.

With regard to claims 7 and 16, Patel et al. fails to teach that determining if the data packet has been fully fragmented includes initiating the polling process, if it is determined that the data packet has been fully fragmented into at least one data cell, to determine if any other port contains a data packet available for processing. Kathory polls each input port to determine if it has a cell to send column 8, lines 14-18). It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that it teaches that determining if the data packet has been fully fragmented includes initiating the polling process, if it is determined that the data packet has been fully fragmented into at least one data cell, to determine if any other port contains a data packet available for processing, as in Kathory, because such an arrangement would enable the switch to begin processing a packet at another port as soon as a previous packet has been broken into at least one cell.

With regard to claims 8 and 14, Patel et al. fails to teach that determining if the data packet has been fully fragmented includes initiating the fragmentation process, if it is determined that another port contains a data packet for processing, to fragment the data packet on the other port into at least one data cell having a defined size; wherein the packet fragmentation process continues fragmenting the data packet on the other port into data cells until the user-defined number of cells are generated. Kothary teaches that determining if the packet has been fully fragmented includes initiating the fragmentation process, if it is determined that another port contains a data packet for processing, to fragment the data packet on the other port into at least one data cell having a defined size (abstract; column 8, lines 14-18). Davis et al. teaches the routing of no more than B packets during any switch cycle (abstract); the number of packets from any given input port is thus limited to B. It would have been obvious to one of ordinary

skill in the art to modify the invention of Patel et al. so that determining if the packet has been fully fragmented includes initiating the fragmentation process, if it is determined that another port contains a data packet for processing, to fragment the data packet on the other port into at least one data cell having a defined size, as in Kothary, because such an arrangement would help prevent each packet from waiting a long time for service. Neither Patel et al. nor Kothary teaches that the packet fragmentation process continues fragmenting the data packet on the other port into data cells until the user-defined number of cells are generated. It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that the packet fragmentation process continues fragmenting the data packet on the other port into data cells until the user-defined number of cells are generated, as suggested by Davis et al., because such an arrangement would allow the switch to service other ports, without waiting an excessively long time, even when a packet that is currently being fragmented is very long, and such an arrangement would limit the bandwidth requirement of the network that is attached to the switch.

With regard to claim 17, Patel et al. fails to teach the packet completion fragmentation switching process, responsive to the packet completion port switching process, comprises determining that another port contains a data packet for processing, for initiating said packet fragmentation process to fragment said data packet on said other port into at least one data cell having a defined size; wherein said packet fragmentation process continues fragmenting said data packet on said other port into said data cells until said user-defined number of cells are generated. Davis et al. teaches the routing of no more than B packets during any switch cycle (abstract); the number of packets from any given input port is thus limited to B. It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that it

teaches that the packet completion fragmentation switching process, responsive to the packet completion port switching process, comprises determining that another port contains a data packet for processing, for initiating said packet fragmentation process to fragment said data packet on said other port into at least one data cell having a defined size; wherein said packet fragmentation process continues fragmenting said data packet on said other port into said data cells until said user-defined number of cells are generated because such an arrangement would enable the switch to completely process packet into cells without small packets waiting a disproportionately long time for service, and such an arrangement would limit the required bandwidth of the network attached to the switch. .

With regard to claim 18, Patel et al. fails to teach a user interface for allowing a user to specify at least one user-defined parameter utilized by said packet fragmentation process. Davis et al. teaches the routing of no more than B packets during any switch cycle (abstract); the number of packets from any given input port is thus limited to B. B could be a user-defined parameter. It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that it teaches a user interface for allowing a user to specify at least one user-defined parameter utilized by said packet fragmentation process, as suggested by Davis et al., because such an arrangement would allow the switch to be controlled by users of the switch, and could be used to limit the bandwidth requirement of the network attached to the switch.

With regard to claims 19 and 27, Patel et al. fails to teach that the at least one user-defined parameter includes the user-defined number of cells to be generated by the packet fragmentation process; and the defined size of said at least one data cell. Davis et al. teaches the routing of no more than B packets during any switch cycle (abstract); the number of packets

from any given input port is thus limited to B. It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that it teaches that the at least one user-defined parameter includes the said user-defined number of cells to be generated by the packet fragmentation process, as suggested by Davis et al; and the defined size of said at least one data cell because such an arrangement would enable users to determine the number of cells and the size of each cell, and such an arrangement would limit the bandwidth requirement of the network attached to the switch.

With regard to claim 20, Patel et al. fails to teach 53-byte ATM cells. Kothary teaches ATM cells, which are inherently 53-byte cells (abstract). It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that it teaches 53-byte ATM cells, as in Kothary, because such an arrangement would enable the system to enjoy the well-known benefits of ATM, such as high speed.

With regard to claim 21, Patel et al. teaches a method comprising a port polling process for polling a plurality of data ports connected to a network (abstract). Patel et al. fails to teach that the network is a synchronous optical network and that the polling process is to determine the availability of a data packet on any of said ports; and a packet fragmentation process, responsive to said port polling process determining the availability of said data packet on one of said plurality of ports, for fragmenting said data packet into at least one Asynchronous Transfer Mode (ATM) cell. Kothary teaches fragmenting of Ethernet packets into ATM cells (abstract) and polling of ports (column 8, lines 14-18). It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that it teaches that the network is a synchronous optical network and that the polling process is to determine the availability of a data packet on

any of said ports, as in Kothary; and a packet fragmentation process, responsive to said port polling process determining the availability of said data packet on one of said plurality of ports, for fragmenting said data packet into at least one Asynchronous Transfer Mode (ATM) cell , as in Kathory, because such an arrangement would allow the input ports to be multiplexed to the output ports at a high rate of speed.

With regard to claim 22, Patel et al. fails to teach a cell limit monitoring process for monitoring the number of data cells produced by said packet fragmentation process to determine if said user defined number of cells have been generated. Davis et al. teaches the routing of no more than B packets during any switch cycle (abstract); the number of packets from any given input port is thus limited to B. It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that it teaches a cell limit monitoring process for monitoring the number of data cells produced by said packet fragmentation process to determine if said user defined number of cells have been generated, as suggested by Davis et al., because such an arrangement would prevent the switch from devoting too much time to serving large packets, and such an arrangement would limit the required bandwidth of the network that is attached to the switch.

With regard to claim 23, Patel et al. fails to teach a packet completion monitoring process for monitoring the status of said packet fragmentation process to determine if said data packet has been fully fragmented into said at least one data cell. Kothary teaches fragmenting of Ethernet packets into ATM cells (abstract). The invention of Kathory inherently monitors the status of the packet fragmentation process. It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that it teaches a packet completion monitoring

process for monitoring the status of said packet fragmentation process to determine if said data packet has been fully fragmented into said at least one data cell, as in Kathory, because such an arrangement would enable the switch to determine whether processing of a packet is complete.

With regard to claim 28, Patel et al. fails to teach a packet completion monitoring process for monitoring the status of said packet fragmentation process to determine if said data packet has been fully fragmented into said at least one data cell. Kothary teaches fragmenting of Ethernet packets into ATM cells (abstract). The invention of Kathory inherently monitors the status of the packet fragmentation process. It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that teach a packet completion monitoring process for monitoring the status of said packet fragmentation process to determine if said data packet has been fully fragmented into said at least one data cell, as in Kathory, because such an arrangement would enable the switch to perform complete fragmentation on each Ethernet packet before processing the next Ethernet packet.

With regard to claims 30 and 31, Patel et al. fails to teach that the computer readable medium is either a read-only memory or a random access memory. Examiner takes Official Notice that it has been common practice in the art to use either read-only memory or random access memory. It would have been obvious to one of ordinary skill in the art to modify the invention of Patel et al. so that it teaches using either random access memory or read only memory because Examiner takes Official Notice that it has been common practice in the art to use read-only memory or random access memory because the former provides nonvolatile memory, and the latter is changeable through programming; both types of memory are faster than storage.

With regard to claim 33, Patel et al. fails to teach that the processor and memory are incorporated into a single board in the computer. Examiner takes Official Notice that it has been common practice in the art to incorporate the processor and memory into a single board. It would have been obvious to one of ordinary skill in the art to modify the teaching of Patel et al. so that it includes a processor and memory incorporated into a single board because Examiner takes Official Notice that such an arrangement has been common practice in the art as a means for making troubleshooting of the computer easier.

With regard to claim 34, Patel et al. fails to teach that the processor and memory are incorporated into an Asynchronous Transfer Mode / Packet Over Sonet (ATM/POS) processor. Examiner takes Official Notice that it has been common practice in the art to incorporate processor and memory are incorporated into an Asynchronous Transfer Mode / Packet Over Sonet (ATM/POS) processor. It would have been obvious to one of ordinary skill in the art to modify Patel et al. so that it teaches that the processor and memory are incorporated into an Asynchronous Transfer Mode / Packet Over Sonet (ATM/POS) processor because Examiner takes Official Notice that such an arrangement has been common practice in the art because it enables the switch to operate at high speed.

Response to Arguments:

6. Applicant argue that the claims are enabled. Applicant quotes portions of the specification to support the conclusion that the specification enables the claims. But the quoted portions do not support the claims. For example, for claims 4, 5, 12, and 13, the specification

does not state or show that the data elements that are stored allow for subsequent processing of the data packet. Also, with regard to claim 25, the quoted portion fails to state or show that the port switching event is an unbalanced port-loading condition.

Applicant argues that neither Kothary nor Davis teaches the continuation of the fragmentation until a user-defined number of cells are generated. But, as stated in the rejection, this feature is suggested by Davis.

Applicant argues that Kothary does not include fragmenting the data packet into data cells until a port switching event occurs. But the rejection argues that the generation of a user-defined number of cells is a port switching event, which is suggested by Davis.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joe Logsdon whose telephone number is (703) 305-2419. The examiner can normally be reached on Monday through Friday from 10:00 am to 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached on 703-305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joe Logsdon

Patent Examiner

Saturday, August 07, 2004

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